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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/661,919	09/12/2003	William J. Taylor	P-8059.00	8345

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EXAMINER	
KRAMER, NICOLE R	
ART UNIT	**PAPER NUMBER**
3762	

DATE MAILED: 10/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/661,919	TAYLOR ET AL.	
	Examiner	Art Unit	
	Nicole R. Kramer	3762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 September 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14,16-36,38-57 and 59-67* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14,16-36,38-57 and 59-67* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 66-67 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,531,003 ("Seifried et al.").

Seifried et al. discloses a feedthrough assembly comprising a ferrule (10) having an inner surface and an outer surface, a terminal (electrical pin lead 12) extending through said, a conductive metal coating covering the terminal said coating being more resistant to oxidation than said terminal (a metallic film or coating 30 is placed on the pin to minimize and control the growth of the oxide thereon; see col. 3, lines 1-25), and a body of insulation material disposed between said terminal and said inner wall for preventing said ferrule from electrically contacting said terminal (insulator seal means 14; see lines 15-20). Seifried et al. discloses that the electrical feedthrough is intended for use with an implantable pulse generator, which includes an encasement or container having electrical contents disposed within the container (see col. 2, lines 1-35). Although the IPG is not shown in the figures, Seifried discloses that the ferrule of the feedthrough assembly extends into the container of the IPG for the purposes making electrical connection between the bottom end of the pin 12 and the electrical contents

thereof (see col. 2, lines 24-34). Although not explicit, a mechanical connector for electrically coupling and mechanically engaging the first end of terminal with an electrical contact coupled to the electrical components of the IPG is necessarily present.

With respect to claim 67, the conductive metal coating is a noble metal or a noble metal alloy (see col. 3, lines 35-40). Seifried et al. discloses that the conductive metal coating may be gold, platinum, palladium, and titanium (see col. 3, lines 35-40).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-14, 16-36, 38-57, and 59-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,531,003 ("Seifried et al.") in view of U.S. Patent No. 6,159,560 ("Stevenson et al."), and further in view of U.S. Patent No. 5,245,999 ("Dahlberg et al.").

Seifried et al. discloses a feedthrough assembly comprising a ferrule (10) having an inner surface and an outer surface, a terminal (electrical pin lead 12) extending through said, a conductive metal coating covering the terminal said coating being more resistant to oxidation than said terminal (a metallic film or coating 30 is placed on the pin to minimize and control the growth of the oxide thereon; see col. 3, lines 1-25), and a body of insulation material disposed between said terminal and said inner wall for

preventing said ferrule from electrically contacting said terminal (insulator seal means 14; see lines 15-20). Seifried et al. discloses that the electrical feedthrough is intended for use with an implantable pulse generator, which includes an encasement or container having electrical contents disposed within the container (see col. 2, lines 1-35). Although the IPG is not shown in the figures, Seifried discloses that the ferrule of the feedthrough assembly extends into the container of the IPG for the purposes making electrical connection between the bottom end of the pin 12 and the electrical contents thereof (see col. 2, lines 24-34). Although not explicit, a first connector for electrically coupling and mechanically engaging the first end of terminal with an first electrical contact coupled to the electrical components of the IPG is necessarily present.

Seifried et al. fails to disclose that the ferrule may contain a second conductive metal coating which is more resistant to oxidation than the ferrule covering at least a portion of said ferrule outer surface. Stevenson et al. discloses a process for depositing a silver coating on a selected, metallic component of a feedthrough apparatus to displace surface oxide and to deposit a conductive finish suitable for making an electrical connection (see Abstract). The selected component of the feedthrough apparatus may be an outer surface of the ferrule (see col. 2, lines 60-62 and col. 4, line 58 - col. 5, line 50). Since the ferrule is often formed of a material susceptible to oxidation, such a coating helps guarantee a long-term electrical connection which will remain oxide free (see col. 5, lines 1-7). It would have been obvious to one having ordinary skill in the art at the time of applicant's invention to modify the feedthrough assembly of Seifried et al. such that a second conductive metal coating which is more

resistant to oxidation than the ferrule covers at least a portion of the ferrule outer surface as taught by Stevenson et al. in order to help guarantee a long term electrical connection which will remain oxide free.

Seifried et al. and Stevenson et al. fail to specifically disclose a second connector for electrically coupling and mechanically engaging the ferrule outer surface with a second electrical contact coupled to the electrical device. It is well known in the art to utilize a second connector for electrically coupling and mechanically engaging the ferrule outer surface with the pacemaker circuitry in order to enable the pacemaker to operate in an unipolar mode (that is, the housing, which is attached to the ferrule, of the pacemaker is utilized as the ground electrode in electrical stimulation of the heart). For example, Dahlberg et al. teaches a feedthrough apparatus for a pacemaker which permits unipolar operation of the pacemaker. The feedthrough (1) includes a case 3 (i.e., a ferrule) which extends through the pacemaker housing (2), wherein the case encloses an insulating compound (4) through which a conductor or terminal pin (5) runs (see, for example, col. 4, lines 20-32). In order to enable a unipolar connection, connecting means 9 electrically and mechanically connects the outer surface of case 3 to an indifferent pole 10 of the stimulating pulse generating circuitry 26 of the pacemaker (see, for example, col. 4, lines 33-66). It would have been obvious to one having ordinary skill in the art at the time of applicant's invention to modify the feedthrough assembly of Seifried et al./Stevenson et al. such that a second connector electrically and mechanically connects the ferrule outer surface to the circuitry of the pacemaker as taught by Dahlberg et al. in order to enable the pacemaker to function in

a unipolar stimulation mode, thereby requiring only one stimulation electrode for pacing the heart.

With respect to claims 2 and 45, Seifried et al. discloses that the conductive metal coating (30) also covers an area of said terminal adjacent to said body of insulation material (see Fig. 1).

With respect to claims 3-4, 23-24, and 46-47, Seifried et al. discloses that the electrical feedthrough is intended for use with an implantable pulse generator (see col. 2, lines 1-35). Although not explicit, a connector for electrically coupling and mechanically engaging the first end of terminal with an electrical contact coupled to the electrical components of the IPG is necessarily present. Seifried et al. is silent as to the type of connector. As admitted by Applicant at pages 8-9, crimping and spring devices are both well known in the art for ensuring an electrical connection between terminal pins and electrical contacts. It would have been obvious to one having ordinary skill in the art at the time of applicant's invention to utilize either a crimping or a spring device as the connector because the selection of any connector in order to ensure an electrical connection between the terminal pin and the electrical contact would be within the level or ordinary skill in the art.

With respect to claims 5, 35, and 48, Seifried et al. discloses that the conductive metal coating entirely covers said terminal (see Fig. 1).

With respect to claims 6, 9-11, 25, 28-30, 49, and 52-54, Seifried et al. discloses that the conductive metal coating is a noble metal or a noble metal alloy (see col. 3,

lines 35-40). Seifried et al. discloses that the conductive metal coating may be gold, platinum, palladium, and titanium (see col. 3, lines 35-40).

With respect to claims 7-8, 26-27, and 50-51, Seifried et al. discloses a feedthrough assembly comprising a conductive metal coating covering the terminal said coating being more resistant to oxidation than said terminal (a metallic film or coating 30 is placed on the pin to minimize and control the growth of the oxide thereon; see col. 3, lines 1-25). Seifried discloses that the conductive metal coating may be gold, platinum, palladium, and titanium (see col. 3, lines 35-40), but fails to specifically disclose that the conductive metal coating may be rhodium or ruthenium. It would have been obvious to one having ordinary skill in the art at the time of applicant's invention to substitute either rhodium or ruthenium as the conductive metal coating because the selection of any noble metal in order to minimize and control the growth of oxidation on the terminal would be within the level or ordinary skill in the art.

With respect to claims 12-13, 31-32, and 55-56, Seifried et al. discloses that the thickness of the coating is not critical so long as it is substantially continuous in its coverage. It may range from 500A to about 10,000A (see col. 3, lines 20-25).

With respect to claims 14, 36, and 57, Seifried et al. discloses that the terminal (pin 12) is a refractory metal or a refractory metal alloy (tantalum or niobium).

With respect to claims 16, 38, 59, and 65, Dahlberg et al. fails to disclose that the connector is a spring contact. As admitted by Applicant at page 9, spring devices are well known in the art for ensuring an electrical connection between two structures. It would have been obvious to one having ordinary skill in the art at the time of applicant's

invention to utilize a spring device as the connector because the selection of any connector in order to ensure an electrical connection between the two structures would be within the level or ordinary skill in the art.

With respect to claims 17, 39, and 60, Stevenson et al. discloses that the second conductive coating is a noble metal (silver).

With respect to claims 18-19, 40-41, and 62-63, Stevenson et al. discloses that since the ferrule is often formed of a material susceptible to oxidation, such a coating helps guarantee a long term electrical connection which will remain oxide free (see col. 5, lines 1-7), but fails to specifically disclose that the conductive coating may be titanium or niobium. It would have been obvious to one having ordinary skill in the art at the time of applicant's invention to substitute either titanium or niobium as the conductive coating because the selection of any conductive metal in order to establish a reliable electrical connection which is also resistant to oxidation would be within the level or ordinary skill in the art.

With respect to claims 20-21, 42-43, and 63-64, Stevenson et al. fails to disclose the specific thickness of the conductive pad attached to the ferrule. However, Seifried et al. discloses that a satisfactory thickness of a conductive coating that is resistant to oxidation may range from 500A to about 10,000A (see col. 3, lines 20-25).

With respect to claim 22, Seifried et al. discloses that the feedthrough assembly of Seifried used in an IPG is necessarily manufactured according to the method of claim 22.

With respect to claims 33 and 34, Seifried et al. discloses that the protective metal coating may be applied over the entire pin or it may be applied to only specific portions of the pin (see col. 3, lines 15-20). Seifried et al. fails to specifically disclose that forming the conductive coating includes mechanically or chemically masking areas that are not to be coated with the conductive material (i.e., areas adjacent to the pin or areas on the pin). Masking is a well-known methodology for applying selective coatings (see Stevenson et al. which uses paper mask 44 to shield areas on the feedthrough apparatus which are not to be coated). It would have been obvious to one having ordinary skill in the art at the time of applicant's invention to mechanically or chemically mask areas that are not to be coated with the conductive material in order to effectively apply the conductive coating only on the desired area (i.e., avoid coating areas adjacent to the pin or areas on the pin that are not desired to be coated).

Response to Arguments

5. Applicant's arguments filed 8/2/06 have been fully considered but they are not persuasive.

6. Specifically, Applicant first argues that "a first connector for electrically coupling and mechanically coupling" the first end of the terminal with an electrical contact coupled to the electrical components of the IPG is not necessarily present in Seifried. Examiner respectfully disagrees. Although the IPG is not shown in the figures, Seifried

discloses that the ferrule of the feedthrough assembly extends into the container of the IPG for the purposes making electrical connection between the bottom end of the pin 12 and the electrical contents thereof (see col. 2, lines 24-34). An electrical connection between the bottom end of the pin and the electrical contents of the IPG necessarily requires mechanically coupling the bottom of the pin and the electrical contents (that is, an electrical connection necessarily requires at least some amount of mechanical engagement in order to electrically connect the components, although the opposite is not true - a mechanical engagement does not require an electrical connection in order to mechanically connect the components). Further, Examiner considers applicant's examples (that an electrical connection may be made with a conductive adhesive or a metallurgical joint such as solder) to mechanically and electrically couple the terminal pin to the electrical contact.

7. Applicant also argues that the statements made on pages 8-9 admit that crimping devices and spring devices exist, but has not admitted that crimping and spring devices are both well known in the art for ensuring an electrical connection between terminal pins and electrical contacts. Examiner respectfully disagrees. Applicant's discussion at pages 8-9 indicates that both crimping and spring devices are known for making an electrical connection (for example, see statement at page 8 that crimping is among the easiest and the least expensive of mechanical methods for joining terminal with other wires or cables). Further, Applicant's discussion of spring devices at page 9 indicate that spring devices are known to be utilized for making an electrical connection between

two components. Therefore, Examiner maintains that it would have been obvious to one having ordinary skill in the art at the time of applicant's invention to utilize either a crimping or a spring device as the connector because the selection of any connector in order to ensure an electrical connection between the terminal pin and the electrical contact would be within the level or ordinary skill in the art.

8. Finally, Applicant argues that the motivation to combine Seifried, Stevenson, and Dahlberg. Both Seifried and Stevenson relate to controlling oxidation growth of feedthrough assemblies. Seifried discusses that electrical feedthroughs used in electrical medical devices may be susceptible to electromagnetic interference, and thus typically the feedthrough contains a capacitor for shunting away EMI (see col. 1, lines 17-39). However, Seifried is directed to solving the problem of oxide growth on the terminal pin because such oxide growth can act as an insulator instead of a conductor, and thus affect the conductivity of the pin lead and its ability to make good electrical connections (see col. 1, lines 40-56).

As Applicant suggests, Dahlberg relates to a feedthrough structure that can be used in unipolar and bipolar pacemakers. Since Seifried and Stevenson relate primarily to the feedthrough structure, they are silent as details relating to the connection between the feedthrough structure and the IPG circuitry. Thus, Dahlberg is cited as evidence for the statement that it is well known in the art to utilize a second connector for electrically coupling and mechanically engaging the ferrule outer surface with the pacemaker circuitry in order to enable the pacemaker to operate in an unipolar mode

(that is, the housing, which is attached to the ferrule, of the pacemaker is utilized as the ground electrode in electrical stimulation of the heart). Examiner maintains that it would have been obvious to one having ordinary skill in the art at the time of applicant's invention to utilize the feedthrough assembly of Seifried et al./Stevenson et al. in pa pacemaker which operates in a unipolar or bipolar stimulation mode, such as that disclosed in Dahlberg. Therefore, it would have been obvious to one having ordinary skill in the art at the time of applicant's invention to modify the feedthrough assembly of Seifried et al./Stevenson et al. such that a second connector electrically and mechanically connects the ferrule outer surface to the circuitry of the pacemaker as taught by Dahlberg et al. in order to enable the pacemaker to function in a unipolar stimulation mode, thereby requiring only one stimulation electrode for pacing the heart.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nicole R. Kramer whose telephone number is 571-272-8792. The examiner can normally be reached on Monday through Friday, 8 a.m. to 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Angela Sykes can be reached on 571-272-4955. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

NRK
9/22/06

George Manuel
Primary Examiner